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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,407	06/22/2001	Michael Thoms	011106	2625
22876	7590	01/29/2004	EXAMINER	
FACTOR & LAKE, LTD 1327 W. WASHINGTON BLVD. SUITE 5G/H CHICAGO, IL 60607			GAGLIARDI, ALBERT J	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/869,407	Applicant(s) THOMS, MICHAEL	
	Examiner Albert J. Gagliardi	Art Unit 2878	<i>NW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 28 November 2003 has been entered.

Comment on Submissions

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-5, 11, 14-25, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,693,254) in view of Sieber *et al.* (US 5,391,884) and DeBoer *et al.* (4,733,090).**

Regarding claim 1, *Sieber* discloses a phosphor for use in a flat storage element for an x-ray image (col. 3, lines 35-48) comprising a large number of storage particles (col. 3, lines 52-57) which may be placed by means of x-ray light in metastable excitation states that are convertible by irradiation with activating light into an unstable excitation state which is in turn decomposed with the radiation of fluorescent light (col. 3, lines 58-63), and with a binder agent by means of which the storage particles are held together to form a storage layer (col. 3, lines 53-

57), wherein the binding agent and the storage particles have substantially the same refractive index (col. 4, lines 6-11), characterized in that the storage particles consist of a salt material which comprises two salts, chemically different, but crystallizing in the same crystal structure wherein the salts form a mixed crystal (see, for example, col. 4, lines 17-34; and col. 6, lines 8-24).

Regarding the binding agent and the phosphor particles being transparent, although not specifically disclosed by *Sieber*, it is well known in the art to utilize a variety of functionally equivalent binders and phosphors including crystal clear transparent binders such as PMMA (see, for example, *Sieber 884* at col. 5, line 59 to col. 6, line 14, especially col. 6, line 2) and transparent phosphor salts (see, for example, *DeBoer* at col. 3, line 57 to col. 6, line 19). Therefore, absent some degree of criticality, the use of crystal clear transparent binders and phosphors is viewed as an obvious, if not inherent, design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application in view of the known use of such functionally equivalent transparent binders and phosphors for x-ray imaging application.

Regarding claim 2, *Sieber* discloses that the salts differ in their cations or anions (see, for example, col. 4, lines 18-19).

Regarding claim 3, *Sieber* discloses that the cations are halides (see, for example, col. 4, lines 18-19).

Regarding claim 4, *Sieber* discloses that the refractive index of the binder may be a material with a refractive index of between 1.4 and 1.6 (see generally col. 52, line 22 to col. 53, line 56). *Sieber 884* further suggests that the binder may be a plastic material (col. 5, line 59 to col. 6, line 14).

Regarding claim 5, *DeBoer* further suggests that the binder and/or phosphor may be isotropic (col. 3, line 57 to col. 6, line 19).

Regarding claim 11, *Sieber* discloses that the storage element includes a storage layer that forms a bendable structure (col. 1, lines 32-36).

Regarding claim 14, *Sieber '884* suggests that the binder may be PMMA (col. 6, line 2).

Regarding claim 15, the apparatus as suggested by *Sieber*, *Sieber '884*, and *DeBoer* as applied above (see explanation regarding claim 1 above), suggests a method for producing a storage element for an x-ray image (col. 3, lines 35-48) comprising a large number of storage particles (col. 3, lines 52-57) which may be placed by means of x-ray light in metastable excitation states that are convertible by irradiation with activating light into an unstable excitation state which is in turn decomposed with the radiation of fluorescent light (col. 3, lines 58-63), and with a transparent binding agent by means of which the storage particles are held together to form a storage layer (col. 3, lines 53-57), wherein the binding agent and the storage particles have substantially the same refractive index (col. 4, lines 6-11), characterized in that the refractive index of the binding agent is measured (inherent and/or obvious step in view of the recognition of equalizing the indexes of refraction) and in that two salts, one having a refractive index lower than the refractive index of the binding agent and the other having a refractive index above the refractive index of the binding agent (inherent mathematical property of an average refractive index at col. 4, line 10, as well as an inherent property of salts of differing elements (i.e., Cl and Br at col. 4 line 55) the two salt are mixed in proportion such that the refractive index of the mixed crystals obtained from the two matches the refractive index of the binding agent (col. 4, lines 6-11).

Regarding claims 16-17, *Sieber* '884 suggests that the binding agent may be crystal clear PMMA (col. 6, line 2).

Regarding claims 18-20, *Sieber* discloses that the salts may differ in their cations or anions (see, for example, col. 4, lines 18-19 and col. 14-16).

Regarding claim 21, *Sieber* discloses a phosphor for use in a flat storage element for an x-ray image (col. 3, lines 35-48) comprising a large number of storage particles (col. 3, lines 52-57) which may be placed by means of x-ray light in metastable excitation states that are convertible by irradiation with activating light into an unstable excitation state which is in turn decomposed with the radiation of fluorescent light (col. 3, lines 58-63), and with a binder agent by means of which the storage particles are held together to form a storage layer (col. 3, lines 53-57), wherein the binding agent and the storage particles have substantially the same refractive index (col. 4, lines 6-11), characterized in that the storage particles consist of a salt material which comprises two salts, chemically different, but crystallizing in the same crystal structure wherein the salts form a mixed crystal (see, for example, col. 4, lines 17-34; and col. 6, lines 8-24).

Regarding the binding agent and the phosphor particles being transparent, although not specifically disclosed by *Sieber*, it is well known in the art to utilize a variety of functionally equivalent binders and phosphors including crystal clear transparent binders such as PMMA (see, for example, *Sieber* '884 at col. 5, line 59 to col. 6, line 14, especially col. 6, line 2) and transparent phosphors (see, for example, *DeBoer* at col. 3, line 57 to col. 6, line 19). Therefore, absent some degree of criticality, the use of crystal clear transparent binders and phosphors is viewed as an obvious, if not inherent, design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application in view of the known use of such

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functionally equivalent transparent binders and phosphors for x-ray imaging application.

Regarding the storage particles being “crystal clear”, the examiner notes that the suggestion of *DeBoer* that the particles be “substantially transparent” and free from defects, cracks, and inclusions suggests that the storage particle be crystal clear.

Regarding claims 22-23, *Sieber* discloses that the salts may differ in their cations or anions (see, for example, col. 4, lines 18-19 and col. 14-16).

Regarding claim 24, *Sieber* discloses that the refractive index of the binder may be a material with a refractive index of between 1.4 and 1.6 (see generally col. 52, line 22 to col. 53, line 56). *Sieber 884* further suggests that the binder may be a plastic material (col. 5, line 59 to col. 6, line 14).

Regarding claim 25, *DeBoer* further suggests that the binder and/or phosphor may be isotropic (col. 3, line 57 to col. 6, line 19).

Regarding claim 31, *Sieber* discloses that the storage element includes a storage layer that forms a bendable structure (col. 1, lines 32-36).

Regarding claim 34, *Sieber '884* suggests that the binder may be PMMA (col. 6, line 2).

4. Claims 6-8, 12-13, 26-28, and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sieber*, *Sieber 884*, and *DeBoer* as applied to claim 1 above, and further in view of Arakawa (US 4,944,026).

Regarding claims 6 and 26, *Sieber* does not disclose the specific details of the storage element including the specific use of an anti-reflection coating on the front surface of the storage layer.

Regarding the use of an anti-reflection coating, the use of such coatings on storage elements is well known (see for example *Arakawa* at col. 2, lines 34-45) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 7 and 27, *Sieber* does not disclose the specific details of the storage element including the specific use of an absorbing layer on the rear side of the storage layer.

Regarding the use of an absorbing layer, the use of such layers on storage elements is well known (see for example *Arakawa* at col. 7, lines 42-53) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 8 and 28, *Sieber* does not disclose the specific details of the storage element including the specific use of a reflecting layer on the rear side of the storage layer.

Regarding the use of a reflection layer, the use of such layer on storage elements is well known (see for example *Arakawa* at col. 3, lines 54-56) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 12 and 32, *Sieber* discloses that the storage elements may be made according to conventional techniques (col. 11, lines 34-40). Such conventional techniques are known to include methods wherein a binding agent in a liquid state and the storage particles are dispersed to form a thin film-type layer and the binding agent is then cured (see for example *Arakawa* at col. 12, lines 14-23).

Regarding claims 13 and 32, *Arakawa* further discloses that the binding agent is prepared in the highly liquid state to which end it is heated (col. 13, lines 16-18).

5. Claims 9-10 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sieber*, *Sieber 884*, and *DeBoer*, as applied above, and further in view of *Arakawa* and *Kitada et al.* (US 4,835,396).

Regarding claims 9 and 29, *Sieber* does not disclose the specific details of the storage element including the specific use of a protective layer on the rear side of the storage layer.

Regarding the use of a protective layer on the rear side of a storage layer, the use of an additional protective layer on storage elements is well known (see for example *Arakawa* at col. 7, lines 42-49) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application. *Kitada* further discloses that such additional protective layer may be a metal layer such as a lead foil so as to protect from the effects of scattered radiation (col. 8, lines 17-21).

Regarding claims 10 and 30, *Arakawa* further discloses the use of an adhesive layer in conjunction with additional protective layer so as to enhance adhesion of the layers (col. 7, lines 42-49). That the adhesive layer also functions as the absorbing layer would have been a matter of obvious design choice depending on the needs of the application and the desirability an adhesive layer (see explanation regarding claim 7 above).

Response to Arguments

6. Applicant's arguments filed 28 November 2003 have been fully considered but they are not persuasive.

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7. Regarding applicant's argument the claimed invention would not be obvious because none of the prior art suggests any of the benefits of using clear materials, the examiner notes that such argument, in and of itself, is insufficient to overcome the above rejection. The examiner notes that at least *DeBoer*, for example, teaches that one reason for the use of transparent materials is to prevent scattering (col. 3, line 65). Those skilled in the art appreciate that such scattering is well known to affect such factors as resolution, sensitivity, and signal-to-noise ratio.

The examiner notes that even if the benefits of transparent materials were not known in the art, applicant's argument, which is essentially an argument that the inventors have discovered the source of a problem (of which the examiner disagrees), does not rise to the level necessary to overcome the rejection.

The examiner notes that it has been held that applicants who allege they discovered the source of a problem must provide evidence substantiating the allegation, either by way of affidavits or declarations, or by way of a clear and persuasive assertion in the specification. In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) (unsubstantiated statement of counsel was insufficient to show appellants discovered source of the problem); In re Kaslow, 707 F.2d 1366, 217 USPQ 1089 (Fed. Cir. 1983) (Claims were directed to a method for redeeming merchandising coupons which contain a UPC "5-by-5" bar code wherein, among other steps, the memory at each supermarket would identify coupons by manufacturer and transmit the data to a central computer to provide an audit thereby eliminating the need for clearinghouses and preventing retailer fraud. In challenging the propriety of an obviousness rejection, appellant argued he discovered the source of a problem (retailer fraud and manual clearinghouse operations) and its solution. The court found appellant's specification did not support the

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argument that he discovered the source of the problem with respect to retailer fraud, and that the claimed invention failed to solve the problem of manual clearinghouse operations.). See MPEP 2141.02. In this case, there is no substantial evidence that applicant has discovered the problem of scattering.

8. Regarding applicant's similar argument with regards to claim 15, the examiner notes that claim 15 does not even require transparent storage particles.

9. Regarding applicant's argument with regard to claim 15 that the average refractive index of the two salts has nothing to do with the refractive index of the binder, the examiner disagrees.

The examiner notes that the claim requires that one of the salts have a refractive index higher than the binder and one of the salts have a refractive index lower than the binder. Since *Sieber* discloses that the average index of refraction matches that of the binder, one skilled in the art would recognize, that unless the two salts had exactly the same index of refraction (which they do not), one of the salts would need a refractive index above the average, and one would need a refractive index below the average. It is mathematically impossible to have an average wherein all of the respective quantities are above (or below) the average. Since the average matches the refractive index of the binder, one of the salts must have a lower refractive index and the other must have a higher refractive index.

10. The argument with respect to claim 21 has been addressed in the above rejections.

Conclusion

11. This is an RCE of applicant's earlier Application No. 09/869,407. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier

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application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1565.



Albert J. Gagliardi
Primary Examiner
Art Unit 2878